Electronic Version
Stylesheet Version v1.1.1

Claims

[c1] WHAT IS CLAIMED IS:

1.A visor arm structure of a sun visor assembly disposed in a passenger compartment, the visor arm absorbing energy during an impact to the edge of the sun visor assembly comprising:

a molded tubular visor arm having a distal end portion, a middle portion, and a proximal end portion molded over a tubular metal shaft;

said distal end portion having an elbow bend therein and further having an attachment flange for attaching said tubular visor arm to a visor arm mounting bracket; said middle portion having at least one first breakaway notch and at least one second breakaway notch positioned around the tubular visor arm middle portion substantially about 180 degrees from said first breakaway notch so as to direct the sun visor assembly in a predetermined direction to a predetermined collapsed position; and

said proximal end portion having at least one flat surface area providing a sun visor storage position locating point;

whereby upon impact to the front edge of a sun visor assembly the breakaway notches cause the visor arm

structure to absorb energy and collapse the sun visor assembly to a predetermined collapsed position without producing a sharp broken edge to an occupant's head.

[c2] 2.The visor arm structure as claimed in Claim 1 wherein, said elbow bend in said distal end portion is substantially about 90 degrees.

[c3] 3.The visor arm structure as claimed in Claim 1 wherein, there is a plurality of first and second breakaway notches in said middle portion of said tubular visor arm.

[c4] 4.The visor arm structure as claimed in Claim 1 wherein, said tubular metal shaft is selected from the group consisting of steel tubing, and aluminum tubing.

[c5] 5.The visor arm structure as claimed in Claim 1 wherein, said tubular visor arm comprises a material selected from the group consisting essentially of, plastic, acetal, and nylon.

[c6] 6.The visor arm structure as claimed in Claim 1 wherein, the predetermined direction to the predetermined collapsed position is forward and downward.

[c7] 7.The visor arm structure as claimed in Claim 1 wherein, there are two flat surface areas providing a sun visor storage position locating point on said proximal end

portion.

[c8] 8.The visor arm structure as claimed in Claim 1 wherein, said at least one first breakaway notches are ovoid in shape and said at least one second breakaway notches are v-shaped.

[c9] 9.The visor arm structure as claimed in Claim 1 wherein, said at least one first breakaway notch and said at least one second breakaway notch extend completely through said molded tubular visor arm wall.

[c10] 10.The visor arm structure as claimed in Claim 1 wherein, said at least one first breakaway notch and said at least one second breakaway notch extend from the exterior surface only a portion of the distance through said molded tubular visor arm wall.

[c11] 11.A visor arm structure of a sun visor assembly disposed in a passenger compartment, the visor arm absorbing energy during an impact to the edge of the sun visor assembly comprising:
a molded tubular visor arm having a distal end portion, a middle portion, and a proximal end portion molded over a tubular metal shaft;
said distal end portion having an elbow bend therein and further having an attachment flange for attaching said

tubular visor arm to a visor arm mounting bracket; said middle portion having two first breakaway notches and two second breakaway notches positioned around the tubular visor arm middle portion substantially about 180 degrees from said first breakaway notches so as to direct the sun visor assembly in a predetermined direction to a predetermined collapsed position; and

said proximal end portion having at least one flat surface area providing a sun visor storage position locating point;

whereby upon impact to the front edge of a sun visor assembly the breakaway notches cause the visor arm structure to absorb energy and collapse the sun visor assembly to a predetermined collapsed position without producing a sharp broken edge to an occupant's head.

[c12] 12.The visor arm structure as claimed in Claim 11 wherein, said elbow bend in said distal end portion is substantially about 90 degrees.

[c13] 13.The visor arm structure as claimed in Claim 11 wherein, said tubular metal shaft is selected from the group consisting of steel tubing, and aluminum tubing.

[c14] 14.The visor arm structure as claimed in Claim 11 wherein, said tubular visor arm comprises a material selected from the group consisting essentially of, plastic,

acetal, and nylon.

[c15] 15.The visor arm structure as claimed in Claim 11 wherein, the predetermined direction to the predetermined collapsed position is forward and downward.

[c16] 16.The visor arm structure as claimed in Claim 11 wherein, there are two flat surface areas providing a sun visor storage position locating point on said proximal end portion.

[c17] 17.The visor arm structure as claimed in Claim 11 wherein, said at two first breakaway notches are ovoid in shape and said two second breakaway notches are v-shaped.

[c18] 18.The visor arm structure as claimed in Claim 11 wherein, said two first breakaway notches and said two second breakaway notches extend completely through said molded tubular visor arm wall.

[c19] 19.The visor arm structure as claimed in Claim 11 wherein, said at least one first breakaway notch and said at least one second breakaway notch extend from the exterior surface only a portion of the distance through said molded tubular visor arm wall.

[c20] 20.The visor arm structure as claimed in Claim 11

wherein, said tubular metal shaft is a steel tubular metal shaft.